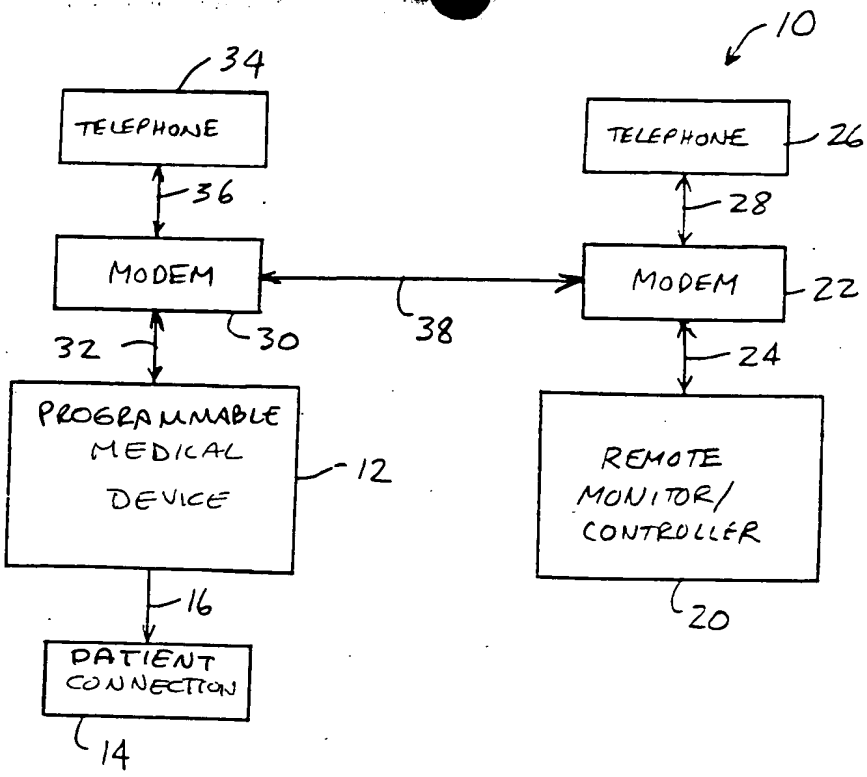
10
34
TELEPHONE
36
MODEM
30
32
PROGRAMMABLE MEDICAL DEVICE
12
16
PATIENT CONNECTION
14
38
TELEPHONE
26
28
MODEM
22
24
REMOTE MONITOR/ CONTROLLER
20

FIG. 1

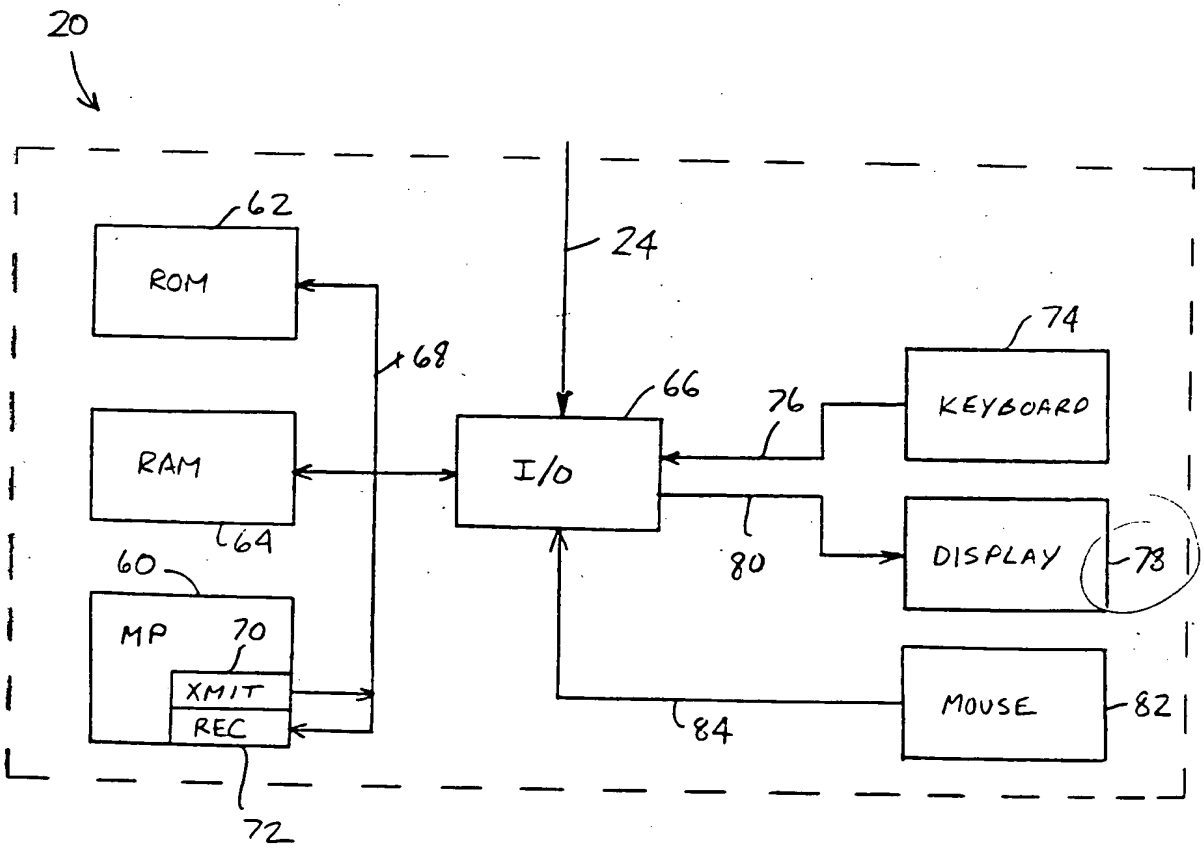
20
62
ROM
68
RAM
64
60
MP
70
XMIT
REC
72
24
66
I/O
74
KEYBOARD
76
80
DISPLAY
78
MOUSE
82
84

FIG. 2

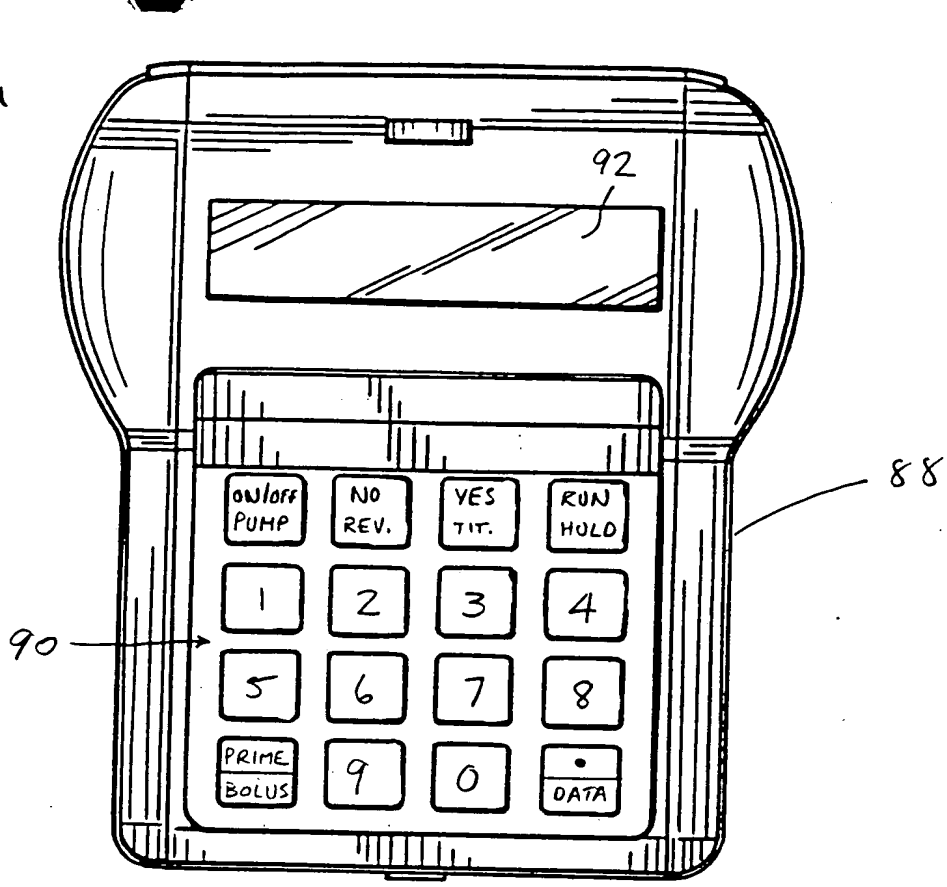
12
92
88
90
ON/OFF PUMP
NO REV.
YES TIT.
RUN HOLD
1
2
3
4
5
6
7
8
PRIME BOLUS
9
0
DATA

FIG. 3

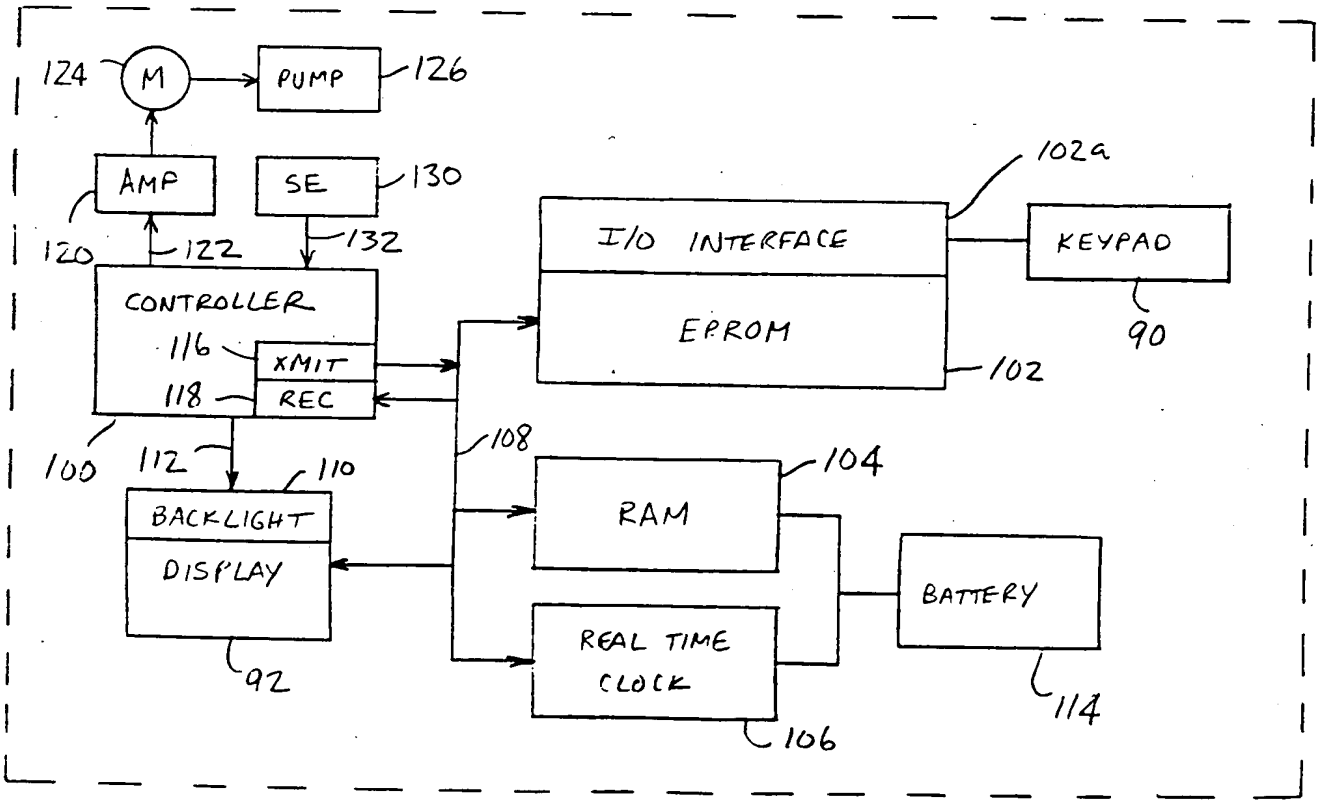
12
124
M
PUMP
126
AMP
SE
130
120
122
132
102a
I/O INTERFACE
KEYPAD
CONTROLLER
EPROM
90
116
XMIT
118
REC
102
100
112
110
108
104
BACKLIGHT
DISPLAY
RAM
BATTERY
REAL TIME CLOCK
92
106
114

FIG. 4

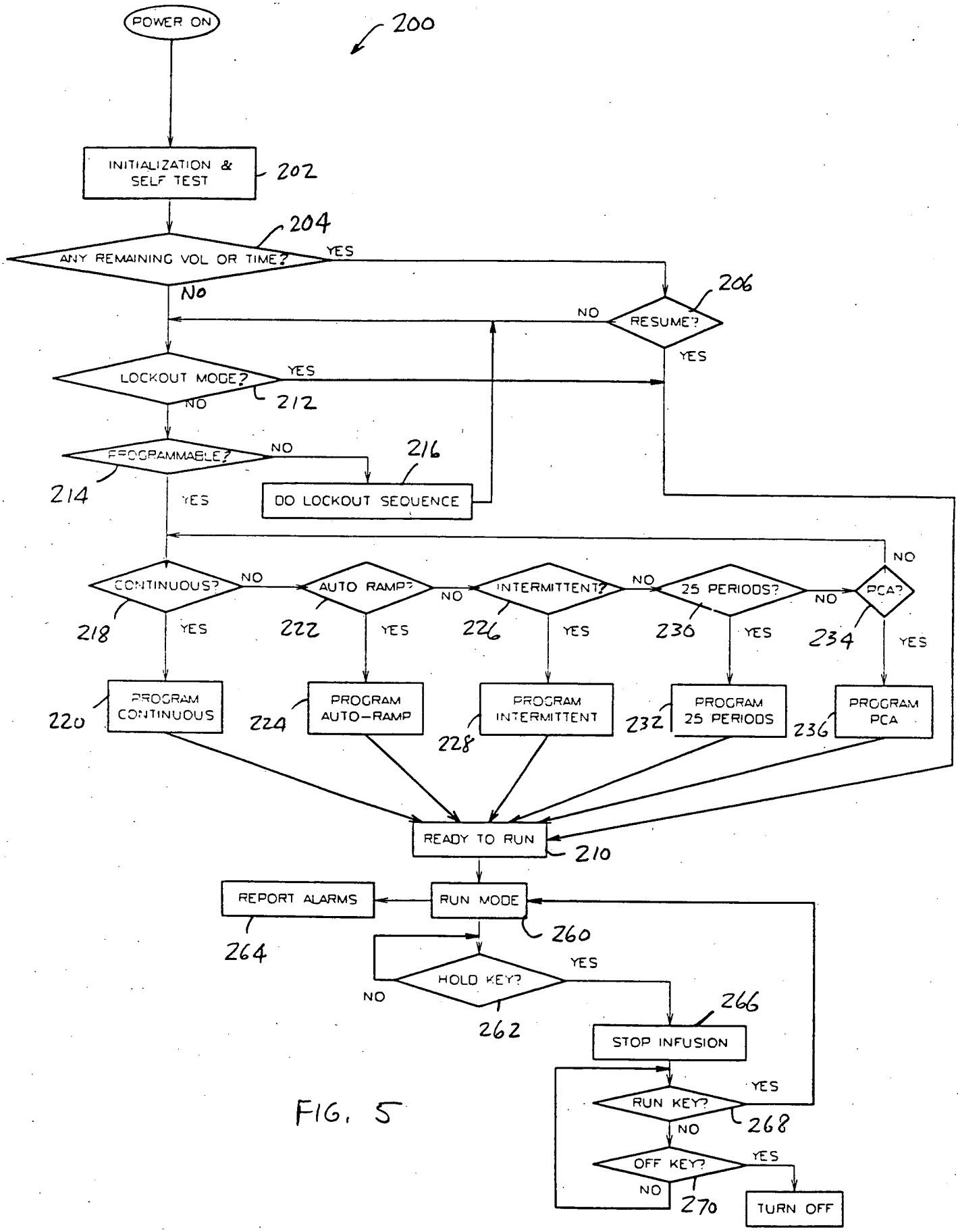
POWER ON
200
INITIALIZATION & SELF TEST
202
204
ANY REMAINING VOL OR TIME?
YES
No
206
NO
RESUME?
YES
LOCKOUT MODE?
YES
212
NO
PROGRAMMABLE?
NO
216
214
YES
DO LOCKOUT SEQUENCE
NO
CONTINUOUS?
NO
AUTO RAMP?
NO
INTERMITTENT?
NO
25 PERIODS?
NO
PCA?
218
YES
222
YES
226
YES
230
YES
234
YES
PROGRAM CONTINUOUS
220
PROGRAM AUTO-RAMP
224
PROGRAM INTERMITTENT
228
PROGRAM 25 PERIODS
232
PROGRAM PCA
236
READY TO RUN
210
REPORT ALARMS
264
RUN MODE
260
YES
HOLD KEY?
NO
262
266
STOP INFUSION
YES
RUN KEY?
268
NO
YES
OFF KEY?
NO
270
TURN OFF

FIG. 5

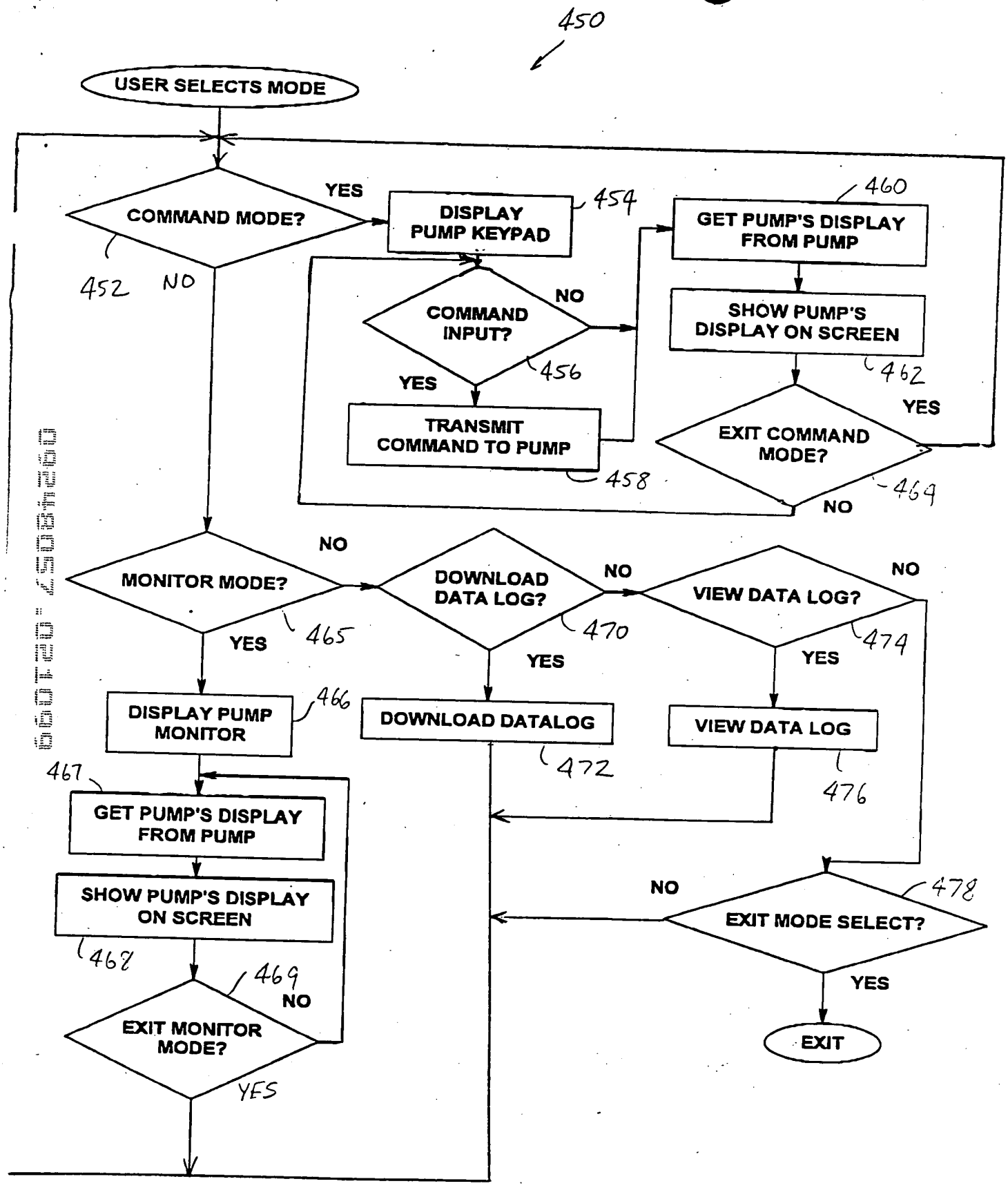
450
USER SELECTS MODE
COMMAND MODE?
YES
452
NO
DISPLAY PUMP KEYPAD
454
COMMAND INPUT?
NO
456
YES
TRANSMIT COMMAND TO PUMP
458
GET PUMP'S DISPLAY FROM PUMP
460
SHOW PUMP'S DISPLAY ON SCREEN
462
EXIT COMMAND MODE?
YES
464
NO
MONITOR MODE?
NO
465
YES
DISPLAY PUMP MONITOR
466
467
GET PUMP'S DISPLAY FROM PUMP
SHOW PUMP'S DISPLAY ON SCREEN
468
469
EXIT MONITOR MODE?
NO
YES
DOWNLOAD DATA LOG?
NO
470
YES
DOWNLOAD DATALOG
472
VIEW DATA LOG?
NO
474
YES
VIEW DATA LOG
476
NO
EXIT MODE SELECT?
478
YES
EXIT

FIG. 6

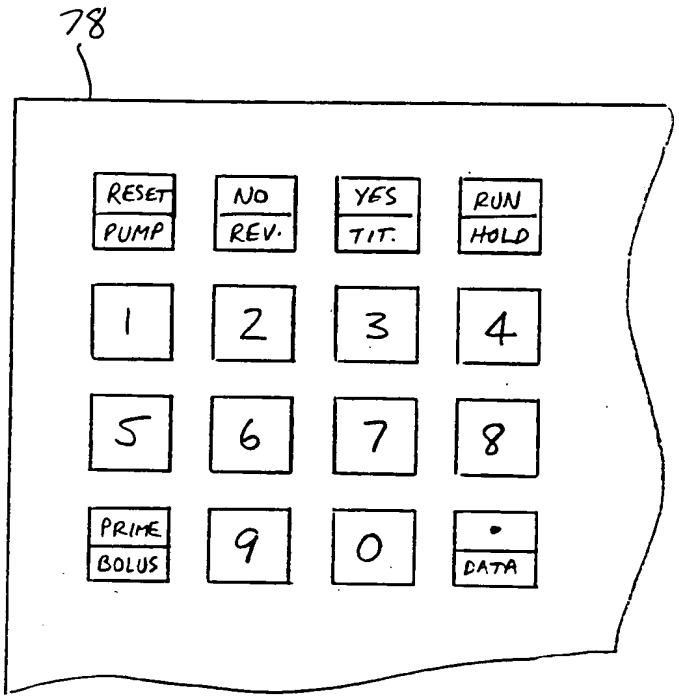
78
RESET
PUMP
NO
REV.
YES
TIT.
RUN
HOLD
1
2
3
4
5
6
7
8
PRIME
BOLUS
9
0
.
DATA

FIG. 7A

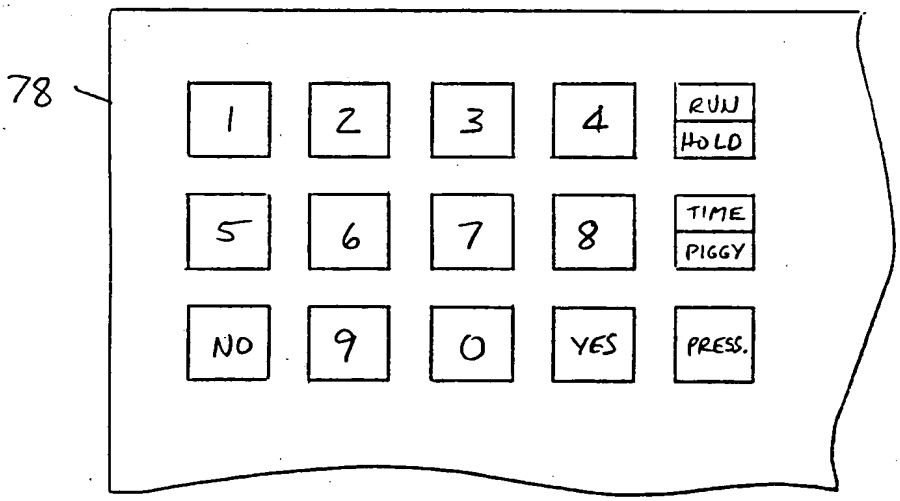
78
1
2
3
4
RUN
HOLD
5
6
7
8
TIME
PIGGY
NO
9
0
YES
PRESS.

FIG. 7B

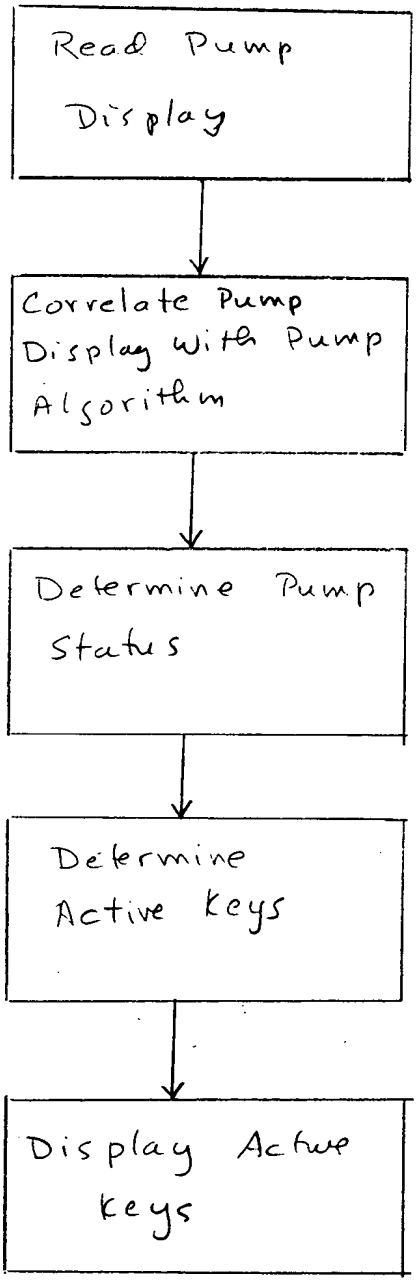
Read Pump Display
801
Correlate Pump Display with Pump Algorithm
802
Determine Pump Status
803
Determine Active Keys
804
Display Active Keys
805

Fig. 8

- Turn pump on

YES to Program
RUN to Repeat

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig. 9 A

Press Yes to Program

CONTINUOUS?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 9 B

Press No

AUTO-RAMP?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 9 C

6015250 "05/05/2006

Press No

INTERMITTENT?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 10A

Press No

25 PERIODS?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 10B

Press No

PCA?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 10C

5,505,713

Press YES

DELIVERY ROUTE INTRAVENOUS?			
ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	• INFUSION DATA

Fig 11 A

Press YES

PROGRAM in mg's?			
ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	• INFUSION DATA

Fig 11 B

Press YES

CONCENTRATION 1.0mg/ml			
ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	• INFUSION DATA

Fig 11C

6015355 02/15/2005

Press YES

Basal	
Rate:	5.0mg/hr

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	. INFUSION DATA

Fig 12A

Enter desired rate (10mg/hr) then press YES

Bag	
Volume:	100.0ml

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	. INFUSION DATA

Fig 12B

Enter total volume available then press YES

Limit Med. By:
# of Dose/Hour?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	. INFUSION DATA

Fig 12C

6,061,256 5/9/2000

Press Yes

DEMAND BOLUS DOSE?			
ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 13A

Press YES

Bolus Dose: 5.0mg			
ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 13B

Enter the desired value (1) then press YES

Bolus Interval: (Hr:Min) 00:10			
ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig. 13C

6861810 "2006250

Enter the amount of time between bolus dose the press YES

Bolus
Dose/hr: 0

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	. INFUSION DATA

Fig 14A

Enter how many doses/hr the patient may have the press YES

SET TITRATION LIMITS?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	. INFUSION DATA

Fig 14B

Press NO

PROGRAM Loading Dose?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	. INFUSION DATA

Fig 14C

6,554,794

Press No

CHECK or CHANGE PAC VALUES?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	• INFUSION DATA

Fig 15A

Press NO

SECURITY LEVEL 1 ALLOW CHANGES?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	• INFUSION DATA

Fig 15B

Press YES

READY PCA LEVEL 1

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	• INFUSION DATA

Fig 15C

6,560,150 B1

Press YES

PCA LEVEL 1 Press RUN			
ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 16 A

Press RUN

Rate /hr (mg)	Amt
10.0	0.0

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	INFUSION DATA

Fig 16 B

6,015,386

Dose Time ?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
1	2	3	4
5	6	7	8
PRIME BOLUS	9	0	• INFUSION DATA

Fig 17A

Dose Time ?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD	PRIME BOLUS	• INFUSION DATA

Fig 17C

Dose Time ?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD

PRIME BOLUS

• INFUSION DATA

Fig 17B

Dose Time ?

ON/OFF PUMP	NO REVIEW	YES TITRATE	RUN HOLD
PRIME BOLUS			• INFUSION DATA

Fig 17D